IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Cancel):

Claim 2 (New) A Raman amplification method comprising steps of:

inputting from a signal output end of an optical fiber a first pump light so as to Raman-amplify an optical signal in said optical fiber; and

inputting from a signal input end of the optical fiber a second pump light having a shorter wavelength than the first light so as to Raman-amplify the first pump light, wherein

a wavelength difference between the optical signal and said second pump light being in an inclusive range of 20 THz through 26 THz.

Claim 3 (New) A Raman amplification method according to claim 2, wherein:

said second pump light have a predetermined amplification bandwidth that does not overlap with a bandwidth of said optical signal.

Claim 4 (New) A Raman amplification method according to claim 2, wherein:

a central wavelength of the second pump light being shorter than a central wavelength of the first pump light by an amount of Raman shift of said optical fiber.

Claim 5 (New) A Raman amplification method according to claim 2, wherein:

a central wavelength of said second pump light being shorter in wavelength than a wavelength of the first pump light by about an amount of a Raman shift.

Claim 6. (New) A Raman amplification method according to claim 2, wherein:

said second pump light is a wavelength division multiplex light.

Claim 7. (New) A Raman amplification method according to claim 2, further comprising a step of:

introducing a third pump light so as to Raman-amplify said second pump light.

Claim 8. (New) A Raman amplification method comprising steps of:

inputting from a signal output end of an optical fiber a first pump light so as to Raman-amplify an optical signal in said optical fiber;

inputting from a signal input end of the optical fiber a second pump light having a shorter wavelength than the first pump light so as to Raman-amplify the first pump light; and

inputting from said signal output end of the optical fiber a third pump light having a shorter wavelength than said first pump light, wherein

said second pump light having a different central wavelength than said third pump light.

Claim 9. (New) A Raman amplification method according to Claim 8, wherein:

the central wavelength of said second pump light being shorter in wavelength than that of the first pump light by an amount of a Raman shift.

Claim 10. (New) A Raman amplification method according to Claim 8, wherein:

said central wavelength of said second pump light not overlapping said optical signal.

Claim 11. (New) A Raman amplification method according to Claim 8, wherein:

the central wavelength of said second pump light being shorter in wavelength than that of the first pump light by about an amount of a Raman shift.

Claim 12. (New) A Raman amplification method according to Claim 8, wherein:

said second pump light is a wavelength division multiplex light.

Claim 13. (New) A Raman amplification method according to Claim 8, further comprising a step of:

producing said first pump light from a semiconductor laser light source.

Claim 14. (New) A Raman amplification method according to Claim 8, further comprising a step of:

introducing a fourth pump light so as to Raman-amplify said second pump light.

Claim 15. (New) A Raman amplification method according to Claim 8, further comprising a step of:

inputting from said signal input end of said optical fiber a fifth pump light configured to Raman-amplify said optical signal.

Claim 16. (New) A Raman amplification method according to Claim 15, further comprising a step of:

producing said first pump light from a semiconductor laser light source.

Claim 17. A Raman amplification method according to Claim 8, wherein:

said third pump light amplifies said second pump light.

Claim 18. (New) An optical transmission method comprising steps of:

inputting from a signal output end of an optical fiber a first pump light so as to Raman-amplify an optical signal in said optical fiber;

inputting from a signal input end of the optical fiber a second pump light having a central wavelength that is shorter than that of the first pump light so as to Raman-amplify the first pump light; and

avoiding deterioration of system noise figure by maintaining a level of the optical signal to be substantially the same or greater than input and output levels throughout an entire span of the optical fiber.

Claim 19. (New) An optical transmission method according to Claim 18, further comprising a step of:

introducing from said signal output end of said optical fiber a third pump light so as to Raman-amplify said first pump light.

Claim 20. (New) An optical transmission method according to Claim 18, wherein:

a central wavelength of said second pump light being shorter in wavelength than that of the first pump light by an amount of a Raman shift.

Claim 21. (New) An optical transmission method according to Claim 18, wherein:

said amplification bandwidth of said second pump light not overlapping a wavelength of said optical signal bandwidth.

Claim 22. (New) An optical transmission method according to Claim 18, wherein:

a central wavelength of said second pump light being shorter in wavelength than that of the first pump light by about an amount of a Raman shift.

Claim 23. (New) An optical transmission method according to Claim 18, wherein:

said second pump light is a wavelength division multiplex light.

Claim 24. (New) An optical transmission method according to Claim 18, wherein:

a difference between said level of said signal through the entire span of said optical fiber and input/output levels being within 0.5dB.

Claim 25. (New) An optical transmission method comprising steps of:

inputting from a signal output end of an optical fiber a first pump light so as to Raman-amplify an optical signal in said optical fiber;

inputting from a signal input end of the optical fiber a second pump light having a shorter wavelength than the first pump light so as to Raman-amplify the first pump light; and

controlling a wavelength dependency of a system noise figure by selecting a central wavelength of said second pump light to be a predetermined wavelength.

Claim 26. (New) An optical transmission method according to Claim 25, wherein:

said controlling step includes controlling both noise figure and gain.

Claim 27. (New) An optical transmission method according to Claim 25, wherein:

said controlling step includes flattening a wavelength dependency of the noise figure.

Claim 28. (New) An optical transmission method according to Claim 25, wherein:

said second pump light is a wavelength division multiplex light.

Claim 29. (New) An optical transmission method according to Claim 25, wherein:

said second pump light is not a wavelength division multiplex light.